

Application Serial No. 10/644,785
Applicant: Takahiro AMANAI
Filing Date: August 21, 2003
Docket No.: 12577/20

IN THE CLAIMS:

Please amend the following claims:

1. (Currently Amended) An image display apparatus comprising:
a display element that displays a picture;
a projecting optical system that forms a real image of the picture;
and
a diffusive hologram screen disposed at a position of the real image or in a vicinity thereof; and
a main body in which the display element, the projecting optical system
and the diffusive hologram screen are arranged,

wherein the main body has a grip portion to allow an operator to hold
the main body in front of the operator,

wherein the diffusive hologram screen has a predetermined directionality, to thereby
introduce, when an operator uses the image display apparatus held in his hand, the picture
displayed on the image display element exclusively into a pupil of the operator, and

wherein the following condition is satisfied:

$$0.3 \text{ deg.} < q < 54.0 \text{ deg.}$$

where q is a value of full width at half maximum in a graph that presents
a diffusion characteristic of the diffusive hologram screen.

2. (Original) An image display apparatus according to claim 1, wherein
the following condition is satisfied:

$$0.01 < Y/D < 2.7$$

where D is a distance from the diffusive hologram screen to the pupil of the operator, and Y is a
diameter of an observable region.

3. (Cancelled)

4. (Original) An image display apparatus according to claim 1, wherein the following condition is satisfied:

$$0.3 \text{ deg.} < d < 54.0 \text{ deg.}$$

where d is an angle formed by a direction in which a diffusion characteristic at a center of the diffusive hologram screen is maximum and a direction in which a diffusion characteristic at a peripheral position farthest from the center of the diffusive hologram screen is maximum.

5. (Original) An image display apparatus according to claim 1, wherein at least one of optical elements constituting the projecting optical system has a free-formed surface.

6. (Original) An image display apparatus according to claim 1, wherein the diffusive hologram screen is a reflection-type one.

7. (Original) An image display apparatus according to claim 1, wherein the diffusive hologram screen is a transmission-type one.

8. (Original) An image display apparatus according to claim 1, wherein a screen surface of the diffusive hologram screen is shaped as a plane surface.

9. (Original) An image display apparatus according to claim 1, wherein a screen surface of the diffusive hologram screen is a curved surface.

10. (Original) An image display apparatus according to claim 1, wherein the diffusive hologram screen is arranged in such a manner that a screen surface thereof is tilted in reference to the operator and is perpendicular to an axial chief ray of the projecting optical system.

11. (Currently Amended) A personal data assistant comprising:
an image display apparatus according to claim 1;

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operation buttons via which the operator inputs and outputs data from
an external source;
a data processor connected with the operation buttons;
a storage device connected with the data processor; and
a transceiver unit connected with the data processor.

12. (Currently Amended) A cellular phone comprising:
an image display apparatus according to claim 1;
operation buttons via which the operator inputs and outputs data from an external source;
an audio input unit for inputting audio data derived from the operator;
and
an audio output unit for outputting audio data transmitted from a mate
correspondent of the operator.